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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,691	07/16/2004	Ryuichi Oda	TOYA115.013APC	7122
20995 7590 01/22/2007 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			EXAMINER CROW, ROBERT THOMAS	
			ART UNIT	PAPER NUMBER
			1634	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		01/22/2007	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/22/2007.

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Office Action Summary

Application No.

10/501,691

Applicant(s)

ODA ET AL.

Examiner

Robert T. Crow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of: .
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

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FINAL ACTION

Status of the Claims

1. This action is in response to papers filed 16 October 2006 in which claims 1, 3, and 6 were amended, claim 2 was canceled, and no new claims were added. All of the amendments have been thoroughly reviewed and entered.

The previous rejections under 35 U.S.C. 102(b) and 35 U.S.C. 103(a) not reiterated below are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed and are addressed following the rejections necessitated by the amendments.

The previous rejections under the judicially created doctrine of obviousness-type double patenting are withdrawn in view of Applicant's filing of a Terminal Disclaimer, which was approved on 3 November 2006.

Applicant incorrectly states on page 5 of the Remarks that claims 1 and 4-7 are under prosecution. Claims 1 and 3-7 are currently under prosecution.

Information Disclosure Statement

2. Applicant's request on page 5 of the Remarks filed 16 October 2006 concerning the references having only abstracts in English is acknowledged. As indicated in the 1449 forms supplied with the previous Office Action, the references have in fact been considered to the extent that they are understood on their face; i.e., the basis of the English abstract, which is noted on the Form 1449. The newly initialed Information Disclosure Statements are provided with this Office Action.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1, 3 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacobsen et al (U.S. Patent No. 6,033,784, issued 7 March 2000).

Regarding claim 1, Jacobsen et al teach a method for immobilizing a biomolecule on a carrier; namely, a solution of a peptide that is N-terminally anthraquinone substituted is added (i.e., spotted) to each well of a plate (column 22, lines 22-30), wherein the plate is the carrier. Jacobsen et al also teach the carrier is then irradiated under a UV lamp (column 22, lines 29-31) containing a component having a wavelength of 280 nm; namely, the irradiation wavelengths are in the range of 190-820 nm (column 19, lines 47-67). Jacobsen et al also teach the carrier is a thermoplastic resin; namely, the substrate is the carbon containing polymer surface polycarbonate (Abstract and column 8, lines 9-21). Jacobsen et al also teach the substrates do not require a coating; namely, Jacobsen et al teach that the thermoplastic resin may be premodified with a coating (column 8, lines 10-35).

It is noted that a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. *Merck & Co. v. Biocraft Laboratories*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also *Upsher-Smith Labs. v. PamLab, LLC*, 412 F.3d 1319, 1323, 75 USPQ2d 1213, 1215 (Fed. Cir. 2005)(reference disclosing optional inclusion of a particular component teaches compositions that both do and do not contain that component); *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998) (The court held that the prior art anticipated the claims even though it taught away from the claimed invention. "The fact that a modem with a single carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed."). Thus, the teaching of Jacobsen et al that the thermoplastic resin may be premodified with a coating encompasses the alternate embodiment wherein the thermoplastic coating is not premodified with a coating. See MPEP § 2123 [R-5].

Regarding claim 3, Jacobsen et al teach the method of claim 1, wherein the carrier is made of polycarbonate (column 8, lines 9-21).

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Regarding claim 5, Jacobsen et al teach the method of claim 1, wherein the biomolecule is a protein; namely, a peptide compound that is N-terminally anthraquinone substituted (column 22, lines 22-30).

Regarding claim 6, Jacobsen et al teach a method for producing a biomolecule immobilized carrier; namely, a solution of a peptide that is N-terminally anthraquinone substituted is added (i.e., spotted) to each well of a plate (column 22, lines 22-30), wherein the plate is the carrier. Jacobsen et al also teach the biomolecule is immobilized to the carrier by irradiation under a UV lamp (column 22, lines 29-31) containing a component having a wavelength of 280 nm; namely, the irradiation wavelengths are in the range of 190-820 nm (column 19, lines 47-67). Jacobsen et al also teach the carrier is a thermoplastic resin; namely, the substrate is the carbon containing polymer surface polycarbonate (Abstract and column 8, lines 9-21). Jacobsen et al also teach the substrates do not require a coating; namely, Jacobsen et al teach that the thermoplastic resin may be premodified with a coating (column 8, lines 10-35).

As noted above, that a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. Thus, the teaching of Jacobsen et al that the thermoplastic resin may be premodified with a coating encompasses the alternate embodiment wherein the thermoplastic coating is not premodified with a coating.

5. Claims 1 and 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Zimlich et al (U.S. Patent No. 5,288,647, issued 22 February 1994).

Regarding claim 1, Zimlich et al teach a method for immobilizing a biomolecule on a carrier; namely, a polynucleotide is disposed (i.e., spotted) on a substrate (column 4, lines 35-37), wherein the substrate is the carrier. Zimlich et al also teach the carrier is then irradiated under a UV lamp (column 4, lines 35-42) containing a component having a wavelength of 280 nm; namely, the irradiation wavelengths are in the range of 200-290 nm (column 10, lines 28-60). Zimlich et al also teach the carrier is a thermoplastic resin; namely, the polynucleotide is directly coupled to a nylon carrier (column 6, lines 40-

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42). Nylon is listed on page 5 of the present specification as a species of the broadly claimed genus of a thermoplastic polyamide resin. Thus, the nylon of Zimlich et al is explicitly listed in the present specification as an embodiment of the instantly claimed thermoplastic polyamide resin. Because the coupling is directly to the nylon (column 6, lines 40-42), the carrier is not coated prior to spotting.

Regarding claim 4, Zimlich et al teach the method of claim 1, wherein the irradiation dose is more than 100 mJ/cm²; namely, the dose is 1.23 kJ/m², which is 129 mJ/cm² (column 6, lines 42-45).

Regarding claim 5, Zimlich et al teach the method of claim 1, wherein the biomolecule is a nucleic acid (i.e., a polynucleotide; column 4, lines 35-37).

Regarding claim 6, Zimlich et al teach a method for producing a biomolecule immobilized carrier; namely, a polynucleotide is disposed (i.e., spotted) on a substrate (column 4, lines 35-37), wherein the substrate is the carrier. Zimlich et al also teach the carrier is then irradiated under a UV lamp (column 4, lines 35-42) containing a component having a wavelength of 280 nm; namely, the irradiation wavelengths are in the range of 200-290 nm (column 10, lines 28-60). Zimlich et al also teach the carrier is a thermoplastic resin; namely, the polynucleotide is directly coupled to a nylon carrier (column 6, lines 40-42). Because the coupling is directly to the nylon (column 6, lines 40-42), the carrier is not coated prior to spotting.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

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Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 4, and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobsen et al (U.S. Patent No. 6,033,784, issued 7 March 2000) in view of Zimlich et al (U.S. Patent No. 5,288,647, issued 22 February 1994).

Regarding claim 4, Jacobsen et al teach the method of claim 1 for immobilizing a biomolecule on a carrier; namely, a solution of a peptide that is N-terminally anthraquinone substituted is added (i.e., spotted) to each well of a plate (column 22, lines 22-30), wherein the plate is the carrier. Jacobsen et al also teach the carrier is then irradiated under a UV lamp (column 22, lines 29-31) containing a component having a wavelength of 280 nm; namely, the irradiation wavelengths are in the range of 190-820 nm (column 19, lines 47-67). Jacobsen et al also teach the carrier is a thermoplastic resin; namely, the substrate is the carbon containing polymer surface polycarbonate (Abstract and column 8, lines 9-21). Jacobsen et al also teach the substrates do not require a coating; namely, Jacobsen et al teach that the thermoplastic resin may be premodified with a coating (column 8, lines 10-35).

As noted above, that a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. Thus, the teaching of Jacobsen et al that the thermoplastic resin may be premodified with a coating encompasses the alternate embodiment wherein the thermoplastic coating is not premodified with a coating.

Jacobsen et al are silent with respect to the dose.

However, Zimlich et al teach a method for immobilizing a biomolecule on a carrier; namely, a polynucleotide is disposed (i.e., spotted) on a substrate (column 4, lines 35-37), wherein the substrate is the carrier. Zimlich et al also teach the carrier is then irradiated under a UV lamp (column 4, lines 35-42)

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containing a component having a wavelength of 280 nm; namely, the irradiation wavelengths are in the range of 200-290 nm. Zimlich et al also teach the irradiation dose is more than 100 mJ/cm²; namely, the dose is 1.23 kJ/m², which is 129 mJ/cm² (column 6, lines 42-45) with the added advantage that the irradiation dose produces good results even with variations in the substrate and other conditions (column 6, lines 42-45).

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the method as taught by Jacobsen et al with the dose as taught by Zimlich et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in good results even with variations in the substrate and other conditions as explicitly taught by Zimlich et al (column 6, lines 42-45).

Regarding claim 7, Jacobsen et al teach the method of claim 6 for producing a biomolecule immobilized carrier; namely, a solution of a peptide that is N-terminally anthraquinone substituted is added (i.e., spotted) to each well of a plate (column 22, lines 22-30), wherein the plate is the carrier. Jacobsen et al also teach the biomolecule is immobilized to the carrier by irradiation under a UV lamp (column 22, lines 29-31) containing a component having a wavelength of 280 nm; namely, the irradiation wavelengths are in the range of 190-820 nm (column 19, lines 47-67). Jacobsen et al also teach the carrier is a thermoplastic resin; namely, the substrate is the carbon containing polymer surface polycarbonate (Abstract and column 8, lines 9-21). Jacobsen et al also teach the substrates do not require a coating; namely, Jacobsen et al teach that the thermoplastic resin may be premodified with a coating (column 8, lines 10-35).

As noted above, that a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art, including nonpreferred embodiments. Thus, the teaching of Jacobsen et al that the thermoplastic resin may be premodified with a coating encompasses the alternate embodiment wherein the thermoplastic coating is not premodified with a coating.

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Jacobsen et al are silent with respect to hybridization.

However, Zimlich et al teach a method for producing a biomolecule immobilized carrier; namely, a polynucleotide is disposed (i.e., spotted) on a substrate (column 4, lines 35-37), wherein the substrate is the carrier. Zimlich et al also teach the carrier is then irradiated under a UV lamp (column 4, lines 35-42). Zimlich et al also teach the immobilized nucleic acid probes on the nylon membranes are hybridized (column 1, lines 15-25) with the added advantage that hybridization allows DNA sequencing to be performed (column 1, lines 15-20).

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the method as taught by Jacobsen et al with hybridization as taught by Zimlich et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in allowing DNA sequencing to be performed as explicitly taught by Zimlich et al (column 1, lines 15-20).

Response to Arguments

9. Applicant's arguments filed 16 October 2006 (i.e., the "Remarks") have been fully considered but they are not persuasive for the reason(s) listed below.

A. Applicant argues on pages 5-7 of the Remarks that the carriers of Jacobsen et al are coated prior to immobilization.

However, Jacobsen et al teach the substrate is the carbon containing polymer surface polycarbonate (Abstract and column 8, lines 9-21) and does not require a coating namely, Jacobsen et al teach that the thermoplastic resin may be premodified with a coating (column 8, lines 10-35).

As noted above, that a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. Thus, the teaching

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of Jacobsen et al that the thermoplastic resin may be premodified with a coating encompasses the alternate embodiment wherein the thermoplastic coating is not premodified with a coating.

B. Applicant argues on page 6 of the Remarks that Zimlich et al do not teach the preferred synthetic resin; namely, nylon membranes.

However, Zimlich et al teach the carrier is a thermoplastic resin; namely, the polynucleotide is directly coupled to a nylon carrier (column 6, lines 40-42). Nylon is listed on page 5 of the present specification as a species of the broadly claimed genus of a thermoplastic polyamide resin. Thus, the nylon of Zimlich et al is explicitly listed in the present specification as an embodiment of the instantly claimed thermoplastic polyamide resin.

C. Applicant argues on pages 6-7 of the Remarks that the carriers of Zimlich et al are coated prior to immobilization, and thus does not cure the alleged deficiency of Jacobsen et al.

However, as noted above, Jacobsen et al also teach the substrates do not require a coating; namely, Jacobsen et al teach that the thermoplastic resin may be premodified with a coating (column 8, lines 10-35).

As noted above, that a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. Thus, the teaching of Jacobsen et al that the thermoplastic resin may be premodified with a coating encompasses the alternate embodiment wherein the thermoplastic coating is not premodified with a coating.

In addition, Zimlich et al teach the carrier is a thermoplastic resin; namely, the polynucleotide is directly coupled to a nylon carrier (column 6, lines 40-42). Because the coupling is directly to the nylon (column 6, lines 40-42), the carrier is not coated prior to spotting.

D. Applicant argues on page 7 of the Remarks that the nylon carriers of Zimlich et al cannot be molded into any desired shape as discussed in the second full paragraph on page 10 of the present specification.

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It is noted that the features upon which applicant relies (i.e., the molding of the carrier) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In addition, as applicant acknowledges on page 7 of the Remarks, Zimlich et al teach the carriers are nylon. Nylon is listed on page 5 of the present specification as a species of the broadly claimed genus of a thermoplastic polyamide resin. Thus, the nylon of Zimlich et al is explicitly listed in the present specification as an embodiment of the instantly claimed thermoplastic polyamide resin.

Page 10 of the present specification specifically states that "since a synthetic resin can be easily formed, it becomes easy to produce DNA microarrays of various shapes." The specification does not teach that the resin is molded into a new shape, as argued on page 7 of the Remarks; rather, that it can be formed into a desired shape, which is broadly interpreted as taking place during polymerization of the material as opposed to after polymerization.

Finally, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

E. Applicant argues on page 7 of the Remarks that the use of a wavelength of 280 nm provides unexpected results.

However, the Declaration under 37 CFR 1.132 filed 16 October 2006 is insufficient to overcome the rejection of the claims based upon either Jacobsen et al or Zimlich et al as set forth in the last Office action for the following reasons:

It refer(s) only to the system described in the above referenced application and not to the individual claims of the application. Thus, there is no showing that the objective evidence of nonobviousness is commensurate in scope with the claims. See MPEP § 716.

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Specifically, the example provided on page 2 of the Declaration uses coated glass slides. The instant claims are not drawn to glass slides. In addition, the instant claims are specifically drawn to slides that are not coated before spotting.

The Declaration also states on page 3 that the advantages of using light of 280 nm is neither disclosed or suggested.

However, Jacobsen et al do specifically teach the range of 190-820 nm (column 19, lines 47-67), which encompasses 280 nm. In addition, Zimlich et al not only teach the use of 280 nm light, but also claim it as part of the method (claim 6).

In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of nonobviousness fails to outweigh the evidence of obviousness.

Conclusion

9. No claim is allowed.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

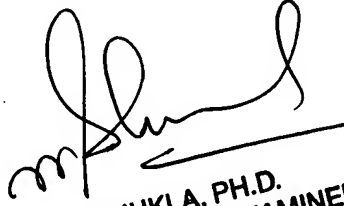
11. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert T. Crow whose telephone number is (571) 272-1113. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



RAM R. SHUKLA, PH.D.
SUPERVISORY PATENT EXAMINER

Robert T. Crow
Examiner
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